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P.I. Name: Dr. Niel Brandt  
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Institution: Pennsylvania State University  
Office of Sponsored Programs  
110 Technology Center Building  
University Park, PA 16802

## FINAL SCIENTIFIC REPORT FOR XMM-NEWTON GRANT

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GRANT NUMBER = NAG5-9924

GRANT TITLE = A Detailed Study of Two Narrow-Line Seyfert 1s

XMM-Newton acquired data on the two accepted targets: PG 1244+026 and PG 1404+226. The observation of PG 1244+026 went nominally, while some of the data for PG 1404+226 were lost due to background flaring. The data have been analyzed and interpreted in detail, and the results are reported in a paper currently submitted to MNRAS:

"XMM-Newton observations of two narrow-line Seyfert 1 active galactic nuclei, ionized accretion disk fitting",  
Crummey J., Fabian A.C., Brandt W.N., Boller Th., 2004,  
Monthly Notices of the Royal Astronomical Society,  
submitted

Spectral modeling and variability studies are reported in this paper, including fitting with relativistically blurred ionized-disk models designed to reproduce the radiation spectrum from the inner accretion disk around a black hole. PG 1404+226 is highly variable in flux and has a steep X-ray spectrum that varies over the course of the observation. Its strong observed soft X-ray excess can be well fitted with an ionized-disk model. The parameters derived from this model indicate that the central black hole is rotating, since the inner radius of the accretion disk lies within the last stable orbit for a non-rotating black hole. The harder spectrum of PG 1244+026 also shows a soft X-ray excess, but it is better represented by a more conventional two-component phenomenological model of a power-law and thermal emission.

The relevant XMM-Newton grant is acknowledged in the paper above, and I would be happy to provide a copy of this paper upon request.

Thank you for supporting this XMM-Newton project. Please let me know if you have any questions or feedback.